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the correlation problems. The majority of these are Chester forms, together with some Ste. Genevieve and St. Louis species. Of interest is a new species of *Septopora*, *S. similis* from the lower St. Louis which is almost identical in character with the Chester *S. subquadrans*. This occurrence is noteworthy in that the genus *Septopora* has hitherto been considered highly characteristic of the Chester. Seventy-two species are described and figured, prominent among which are species of *Talarocrinus* and *Pentremites*.

A. C. McF.

On the Crinoid Genus Scyphocrinus and Its Bulbous Root Camarocrinus. By FRANK SPRINGER. Memoir Smithsonian Institution, 1917. Pp. 74, pls. 9, figs. 16.

For more than a half-century there have been known to paleontologists certain bulb-like, supposedly crinoidal or cystoidal, bodies which were described from American localities in 1869 by Hall as *Camarocrinus*. Similar structures had been known for some time from the Silurian of Bohemia where they had been found by Barrande. He had named them *Lobolithus* without describing them.

In 1904 Schuchert summarized all the known facts touching the occurrence and relations of this form. He found that these structures were of widespread occurrence in both Bohemia and America. In the former they were confined to a horizon equivalent to the American Rochester shale, and in the latter to the Manlius and Helderbergian. In Bohemia they were commonly associated with the genus *Scyphocrinus* which was as yet undescribed from America. They were frequently found in beds void of any other crinoidal remains and a large majority were found in strata with their stalked end down. He came to the conclusion that

Camarocrinus thus appears to be the float of an unknown crinoid, that was held together after the death of the individual by the firmly interlocked double walls of the exterior and interior, while the crown and stalk dropped away. Under this hypothesis the float drifted with the sea currents, was finally filled with water and, the attenuated end being heavier, sank in that position.

It is the purpose of this paper to present the results of some later studies by Mr. Springer which have resulted in a change in the conception as to the functional nature of the so-called *Camarocrinus*. He finds not only that the genus *Scyphocrinus* does occur in abundance in America but that the *Camarocrinus* bulbs are directly connected at the distal end of the stem of crinoids belonging to that genus. Moreover

these bulbs, when in their original position, occur with the stalked end upward and not downward as previously supposed, the bulb being merely a distal specialization of a true root and not a float.

The bulb-like process may itself be described as a rigid, hollow, chambered root, consisting of a large spheroidal bulb with a short projecting collar, a stem base with bifurcating roots resting in and forming a large part of the floor within the collar; and several internal, laterally opposed sacs which abut against the inner side of the bulb wall. . . . The collar and bulb wall consist of single layers of similar plates derived from rootlet systems originating at the ends of the proximal root branches.

Eight species of *Scyphocrinus* occurring in America are described and are figured together with several species of other genera. A table of analysis of the American forms is given.

A. C. McF.

The American Species of Orthophragmina and Lepidocyclina. By JOSEPH A. CUSHMAN. Shorter Contributions to General Geology. U.S. Geological Survey, Professional Paper 125 D, 1920. Pp. 39-108, pls. 7-35.

The genera *Orthophragmina* and *Lepidocyclina* belong to the group of orbitoid *Foraminifera*, a group of excellent horizon-markers due to their limited stratigraphic range, wide geographic distribution, and great abundance in the Tertiary. Hitherto the group has received but little attention by American paleontologists. In the present paper the author describes all known American species, which form but a small percentage of those which he believes will be later described and have been described from the European Tertiary.

Orthophragmina includes those species characterized by the presence of rectangular chambers in the equatorial band. The genus is limited, so far as known, to the Eocene, and in America, chiefly to the upper part. *Lepidocyclina* differs in that the chambers of the equatorial belt are typically hexagonal. It ranges through the Eocene, and Lower and Middle Oligocene.

Sixteen species of *Orthophragmina* are described, of which two are new, and thirty species and varieties of *Lepidocyclina* of which eleven are new. The author includes a table of tentative correlations of the Tertiary of Panama by T. W. Vaughan, a key to the species of *Lepidocyclina* and a list of those species which are considered as good index forms for the Tertiary of the Coastal Plain.

A. C. McF.